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SEDIMENTS

Subject:
Multi-Area Feasibility Study Technical Memorandum
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site

Date:
January 5, 2008

Dear Mr. Saric:

Contact:
Michael J. Erickson

On behalf of the Kalamazoo River Study Group (KRSG), please find enclosed the *Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible Applicable or Relevant and Appropriate Requirements* (ARARs Tech Memo). This document was approved by USEPA on December 23, 2008. This document was originally submitted in February 2008 to satisfy the requirements of Task 1.2.2 of the Statement of Work (SOW) attached to the Administrative Settlement Agreement and Order on Consent (AOC) for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] Docket No. V-W-07-C-864).

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If you have any questions, please do not hesitate to contact us.

Sincerely,

ARCADIS

Michael J. Erickson, P.E.
Associate Vice President

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Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site

Supplemental Remedial
Investigations/ Feasibility Studies

Multi-Area Feasibility Study Technical Memorandum:

Preliminary List of Possible
Applicable or Relevant and
Appropriate Requirements

Kalamazoo River Study Group

January 2009





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
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RECEIVED DEC 31 2008

December 23, 2008

REPLY TO THE ATTENTION OF:

Mr. Michael J. Erickson
Associate Vice President/Principal Engineer
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Brighton, MI 48116

SR-6J

RE: Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARS

Dear Mr. Erickson:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Kalamazoo River Study Group (KRSB) October 6, 2008, revised draft Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible Applicable or Relevant and Appropriate Requirements (ARARS) for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site.

The Response to Comments have adequately addressed U.S. EPA's previous comments and the revised document has incorporated the necessary changes. Therefore, U.S. EPA approves the draft Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible Applicable or Relevant and Appropriate Requirements.

Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "James A. Saric".

James A. Saric
Remedial Project Manager
SFD Remedial Response Branch #1

cc: Paul Bucholtz, MDEQ
David Guier, Millennium Holdings
Chase Fortenberry, Georgia-Pacific
Kathy Huibregtse, RMT, Inc.

**Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site**

**Supplemental Remedial Investigations/
Feasibility Studies**

**Multi-Area Feasibility Study
Technical Memorandum:**

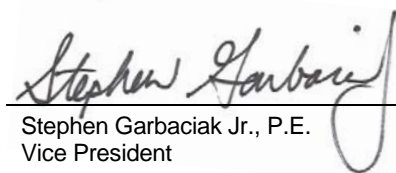
Preliminary List of Possible
Applicable or Relevant and
Appropriate Requirements

Kalamazoo River Study Group

January 2009



Michael J. Erickson, P.E.
SRI/FS Project Coordinator



Stephen Garbaciak Jr., P.E.
Vice President

**Multi-Area Feasibility Study
Technical Memorandum:**

**Preliminary List of Possible
Applicable or Relevant and
Appropriate Requirements**

Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site

Supplemental Remedial
Investigations/Feasibility Studies

Prepared for:
Kalamazoo River Study Group

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Date:
January 2009

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1. Introduction	1-1
1.1 Multi-Area Feasibility Study Documents	1-1
1.2 Document Overview	1-2
2. Federal and State ARARs	2-1
3. Possible ARARs and TBCs	3-1
3.1 Chemical-Specific ARARs and TBCs	3-1
3.1.1 Water-Specific ARARs and TBCs	3-2
3.1.2 Soil-Specific ARARs	3-2
3.1.3 Sediment-Specific ARARs	3-3
3.1.4 Other Chemical-Specific TBCs	3-3
3.2 Location-Specific ARARs and TBCs	3-4
3.2.1 River, Wetlands, and Floodplain-Specific ARARs	3-4
3.2.2 Endangered Species-Specific ARARs	3-5
3.2.3 Other Location-Specific ARARs and TBCs	3-5
3.3 Action-Specific ARARs and TBCs	3-5
3.3.1 Identification and Management of Hazardous Materials ARARs	3-6
3.3.2 Transport of Hazardous Materials ARARs	3-6
3.3.3 Dam Modification TBCs	3-7
3.3.4 Discharge ARARs	3-7
3.3.5 Air Release ARARs	3-7
3.3.6 Safety TBCs	3-7
3.3.7 Emergency Preparedness ARARs	3-8
3.3.8 Management and Design ARARs	3-8
4. References	4-1

Tables

- 1 Possible Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds
- 2 Possible Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds
- 3 Possible Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds

Figure

- 1 Areas of the Site

Acronyms and Abbreviations

ACLs	Alternate Concentration Limits
AOC	Administrative Order on Consent
ARARs	Applicable or Relevant and Appropriate Requirements
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	constituents of concern
CSM	Conceptual Site Model
CWA	Clean Water Act
FS	feasibility study
GLSFATF	Great Lakes Sport Fish Advisory Task Force
MDCH	Michigan Department of Community Health
MDEQ	Michigan Department of Environmental Quality
MIOSHA	Michigan Occupational Safety and Health Act
NCP	National Contingency Plan
NREPA	Natural Resources and Environmental Protection Act
OSHA	Occupational Safety and Health Administration
OU5	Operable Unit 5
PCBs	polychlorinated biphenyls
RCRA	Resource Conservation and Recovery Act
RRD	Remediation and Redevelopment Division
SOW	Statement of Work
SRIs	Supplemental Remedial Investigations
TBC	to be considered
TSCA	Toxic Substances Control Act
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency

1. Introduction

On February 21, 2007 Georgia-Pacific Corporation and Millennium Holdings, LLC—collectively referred to as the Kalamazoo River Study Group, or KRSG—voluntarily entered into an Administrative Settlement Agreement and Order on Consent (AOC) with the U.S. Environmental Protection Agency (USEPA) that will govern the majority of work from this point forward at the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Site or Superfund Site), located in Kalamazoo and Allegan counties in southwest Michigan (Figure 1). The AOC describes a series of activities associated with supplemental remedial investigations and feasibility studies (SRIs/FSs) that will be carried out over the next several years in Operable Unit 5 (OU5) of the Site (SRI/FS AOC; Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] Docket No. V-W-07-C-864; USEPA 2007). OU5 encompasses 80 miles of the Kalamazoo River from Morrow Dam to Lake Michigan, including a stretch of Portage Creek from Alcott Street to its confluence with the Kalamazoo River.

The Statement of Work (SOW) included as Attachment A to the SRI/FS AOC specifies supplemental remedial investigations and feasibility studies to address polychlorinated biphenyls (PCBs) in seven Areas of OU5. The seven Areas of OU5 are shown in Figure 1.

1.1 Multi-Area Feasibility Study Documents

As described in the SOW, Area-specific feasibility studies (FSs) will be developed to support Area-specific risk management. The various FS activities that will be implemented by the KRSG will include examining potential general response actions and evaluating remedial technologies and alternatives to address impacts to human health and the environment using a risk-management approach consistent with the *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (USEPA 2005). The FS development activities will also be performed consistent with the *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA 1988a) and *CERCLA Compliance with Other Laws Manual, Parts I and II* (USEPA 1988b; USEPA 1989).

To guide the FS work and provide for consistency and efficiency across the seven Areas of OU5, the SOW specifies preparation of several Multi-Area FS Planning Documents as the first step in the development of the FS reports. Per the SOW, these Multi-Area FS Planning Documents are intended to “set forth general approaches and concepts with the intent of streamlining preparation of work plans and minimizing review times for future deliverables” (USEPA 2007). An additional intention is to promote a consistent approach for completion of SRI/FS activities in each Area of the Site, as appropriate. The Area-specific work plans will incorporate the Multi-Area documents by reference, with appropriate Area-specific

modifications. Area-specific modifications may incorporate potential new information on expected land use, potential advances in remedial technology, new information from risk-management studies, or other information.

The four Multi-Area FS Planning Documents developed for the Site are described below.

- **Preliminary Remedial Technology Screening** – The first FS Planning Document includes the identification of general response actions and a preliminary list of remedial technologies to address contaminated soil, sediments, and groundwater in each Area.
- **Preliminary List of Possible Applicable or Relevant and Appropriate Requirements** – This topic is the subject of this technical memorandum, which identifies a preliminary list of possible state and federal applicable or relevant and appropriate requirements (ARARs), including chemical-specific, location-specific, and action-specific ARARs as appropriate. This preliminary list of possible ARARs may apply to the circumstances and array of potential remedies at one or more Areas.
- **Preliminary Permitting/Equivalency Requirements** – The third FS Planning Document provides a preliminary analysis of likely permit or permit equivalency requirements. The preliminary analysis focuses on substantive requirements of permits that may be applicable across the Site, and includes a discussion of potential waivers, as appropriate.
- **Candidate Technologies and Testing Needs** – The fourth FS Planning Document identifies candidate technologies for a treatability studies program that, per Section 4.1 of the SOW, will cover the “range of technologies required for alternative analysis.” This memorandum includes a compilation of literature information on the performance, relative costs, applicability, removal efficiencies, operation and maintenance requirements, and implementability of candidate technologies.

These Multi-Area FS Planning Documents were developed based on the understanding that the primary constituent of concern at the Site is PCBs and the relevant contaminated media are in-stream sediment, bank soil, floodplain soil, and groundwater.

1.2 Document Overview

This Multi-Area FS Planning Document, *Preliminary List of Possible Applicable or Relevant and Appropriate Requirements*, presents possible ARARs as they may apply to the possible circumstances and a range of potential remedies at each of the Areas.

In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular site. This “to be considered” (TBC) category consists of non-promulgated advisories, criteria, or guidance developed by USEPA, other federal agencies, or states that may be useful in developing CERCLA remedies. TBCs are not legally binding and do not have the status of possible ARARs. For example, possible chemical-specific TBCs may be those associated with USEPA guidance documents on PCBs at Superfund sites. Potential TBCs that may be applicable to the Site overall are presented in this technical memorandum along with preliminary ARARs. Both ARARs and TBCs may be used in determining the remedial action objectives.

Section 2 defines key terms and types of ARARs. Section 3 presents a preliminary list of possible ARARs and TBCs that may be associated with the general response actions for OU5, and contains tables presenting the specific ARARs and TBCs and a synopsis of their requirements or rationale for identifying them as ARARs or TBCs. Section 4 provides a list of references cited in this document.

2. Federal and State ARARs

CERCLA specifies that Superfund remedial actions comply with ARARs of other federal and state environmental laws (CERCLA, Section 121 (d)(2)(A) and National Contingency Plan (NCP) at 40 Code of Federal Regulations [CFR], Part 300). A requirement under other environmental laws may either be “applicable” or “relevant and appropriate.” Identification of ARARs must be done on a site-specific basis and involves a two-part analysis. First, it is determined whether a given requirement is applicable. If it is not applicable, it is determined whether the requirement is both relevant and appropriate.

The following presents the definitions of “applicable” and “relevant and appropriate” per Section 300.5 of the NCP.

Applicable requirements are those clean-up standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site.

“Applicability” implies that the remedial action or the circumstances at the site satisfy all of the jurisdictional prerequisites of a requirement.

If a requirement is not applicable, one must consider whether it is both relevant and appropriate.

Relevant and appropriate requirements are those clean-up standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not “applicable” to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

The determination that a requirement is relevant and appropriate is a two-step process: (1) determination if a requirement is relevant and then (2) determination if a requirement is appropriate. In some cases, a requirement may be relevant, but not appropriate, given site-specific circumstances. Such a requirement would not be an ARAR for the Site. There is a degree of latitude and discretion in the determination of whether a requirement is relevant and appropriate; it is possible for only part of a requirement to be considered relevant and appropriate in a given case.

In determining whether a requirement is relevant and appropriate, a comparison is made to the pertinence of several factors such as:

- The purpose of the requirement and the purpose of the CERCLA action.
- The media/medium regulated or affected by the requirement and the media/medium impacted or affected at the CERCLA site.
- The substances regulated by the requirement and the substances found at the CERCLA site.
- The actions or activities regulated by the requirement and the remedial action contemplated at the CERCLA site.
- Any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site.
- The type of place regulated and the type of place affected by the release or CERCLA action.
- The type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action.
- Any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resource at the CERCLA site.

The pertinence of each of the factors depends, in part, on whether a requirement addresses a chemical, location, or action. When the analysis results in a determination that a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable.

An alternative that does not comply with an ARAR may have grounds for invoking a waiver, provided protection of human health and the environment is still achieved, as described in CERCLA Section 121(d)(4). An ARAR waiver may be invoked under the following circumstances:

- The selected remedial action is only part of a total remedial action that will attain such ARAR when completed.

- Compliance with such ARAR will result in greater risk to human health and the environment than alternative options.
- Compliance with such ARAR is technically impracticable from an engineering perspective.
- The selected remedial action will attain a standard of performance that is equivalent to that required under the given ARAR, through use of another method or approach.
- The requirement is a state requirement that has been inconsistently applied in similar circumstances at other remedial actions within the state.

If an ARAR waiver is appropriate, the reasons for invoking the waiver will be presented in the Area-specific FS ARAR discussion of the particular alternative.

In accordance with CERCLA Section 121(e), permits are not required for “on-site” CERCLA response actions. However, the selected remedy must comply with the substantive requirements of regulations that otherwise would require permits.

Section 3 presents the possible federal and state ARARs for the potential remedial technologies and process options that will be considered when developing remedial alternatives for the Site. The technologies and process options are developed and discussed in the Multi-Area FS Planning Document *Preliminary Remedial Technology Screening* (ARCADIS 2008a). ARARs (including TBCs) are discussed in three categories—chemical-specific, location-specific, and action-specific—consistent with USEPA’s RI/FS Guidance (1988a).

3. Possible ARARs and TBCs

There are three broad categories of ARARs: chemical-specific, location-specific, and action-specific.

Chemical-specific ARARs are numerical standards that establish the acceptable amount or concentration of a chemical that may be found in, or discharged to the environment.

Location-specific ARARs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely based on their specific locations, such as floodplains, wetlands, historic places, or sensitive ecosystems or habitats.

Action-specific ARARs are technology-based or activity-based requirements or limitations on actions taken with respect to hazardous wastes. These requirements are triggered by the particular remedial activities that are selected to accomplish a remedy.

Possible ARARs and TBCs for the Site are identified based on the current understanding of the site conditions as presented in the *Generalized Conceptual Site Model* (Generalized CSM; ARCADIS 2008b). Specifically, the chemical-specific and location-specific ARARs and TBCs are applicable to the PCB-containing media at the Site. Action-specific ARARs may be applicable to the possible general response actions identified to address the media of concern as discussed in the Generalized CSM (i.e., sediments, bank soils, and floodplain soils). The Area-specific CSMs, ARARs, and potential response actions will be developed, evaluated and refined as additional Area-specific data become available and incorporated in the Area-specific FS Reports.

Tables 1, 2, and 3 present the possible federal and state chemical-specific, location-specific, and action-specific ARARs and TBCs for the potential Site remedial activities discussed in the Multi-Area FS Planning Document *Preliminary Remedial Technology Screening* (ARCADIS 2008a).

3.1 Chemical-Specific ARARs and TBCs

Chemical-specific ARARs potentially apply to surface water, groundwater, soil, sediment and air. These possible chemical-specific ARARs and TBCs are summarized in Table 1. Note that air quality ARARs are discussed in Section 3.3.

3.1.1 Water-Specific ARARs and TBCs

Waters of the United States are subject to regulations contained in the Federal Clean Water Act (CWA). At the state level, chemical-specific ARARs may include the provisions contained within Part 4 of Part 31 (Water Resources Protection) of the Michigan Natural Resources and Environmental Protection Act, as amended (NREPA, also called Act 451); Part 4 of Part 31 provides the state water quality standards.

Groundwater is subject to state regulations listed in Part 201 of NREPA. Generic cleanup criteria and screening levels are listed under Attachment 1, Table 1, Groundwater: Residential and Commercial I (current version) of the Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division (RRD) Operational Memorandum No. 1 (Part 201 Cleanup Criteria/Part 213 Risk-based Screening Levels), dated January 23, 2006.

Risk-based Alternate Concentration Limits (ACLs) under the Resource Conservation and Recovery Act (RCRA) (40 CFR 264.94 and 264.100) are possible federal ARARs. ACLs can be developed after the baseline risk assessment has been performed, incorporating site-specific factors in the calculations (if conditions for ACLs are met at areas of potential applicability). ACLs are allowable for groundwater contamination only and do not address contamination of other media (USEPA 1987; USACE 1999).

ACLs were developed for evaluating groundwater response actions at the Auto Ion Chemicals Inc. Superfund Site in Kalamazoo, Michigan. Although ACLs were not required for PCBs, the Second Five-Year Review Report (2006) presented the methodology for establishing ACLs from site monitoring data.

3.1.2 Soil-Specific ARARs

Soils are subject to state regulations listed in Part 201 of NREPA. Generic soil cleanup criteria and screening levels are listed under Attachment 1, Table 2, Soil: Residential and Commercial I (current version) of the MDEQ RRD Operational Memorandum No. 1 (Part 201 Cleanup Criteria/Part 213 Risk-based Screening Levels), dated December 10, 2004.

The provisions of the Federal Toxic Substances Control Act (TSCA) as they relate to the handling of PCB-containing materials (including soils) are discussed in Section 3.3 below.

3.1.3 Sediment-Specific ARARs

Sediments are subject to regulations contained in the Federal CWA and Michigan's NREPA, Part 201 (Environmental Remediation). These regulations seek to avoid the transfer of constituents of concern (COCs) from sediments to the water column during remedial actions or during normally-expected hydrodynamic conditions. They also address COCs in sediments which can adversely affect biota and their habitats. USEPA Sediment Remediation Guidance (USEPA 2005) discusses sediment investigation procedures, remedial technologies, long-term monitoring, and the use of site-specific risk-based decision-making.

The provisions of TSCA as they relate to the handling of PCB-containing materials (including sediment) are discussed in Section 3.3 below.

3.1.4 Other Chemical-Specific TBCs

The "trigger levels" used by the Michigan Department of Community Health (MDCH) in establishing fish consumption advisories are possible chemical-specific TBCs. The MDCH uses the USFDA's 2.0 parts per million trigger level for total PCB concentrations when developing advisories for the general population (MDEQ 2006). In 1998, the MDCH adopted a new advisory protocol for women of child-bearing age and children less than 15 years old (MDEQ 2006) based on the sport fish consumption advisory issued by the Great Lakes Sport Fish Advisory Task Force (GLSFATF) and presented in "Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory" (GLSFATF 1993). The MDCH developed trigger levels of concentrations of total PCBs for five consumption frequency categories from "1 Meal per week" to "No Consumption" (see Table 1). MDEQ prepares an annual report for its Fish Contaminant Monitoring Program that analyzes concentration data and presents recommendations to MDCH for establishing, modifying, or removing fish consumption advisories (see, e.g., MDEQ 2006). MDCH's fish consumption advice, which is specific to various state water bodies including the Kalamazoo River by fish species and fish length, is published annually in The Michigan Family Fish Consumption Guide (MDCH 2007).

As defined in Attachment 3 to RRD's Operational Memorandum No. 4 (Site Characterization and Remediation Verification), dated August 2, 2006, Part 201 generic sediment cleanup criteria are not available due to the wide range of potential use impairments. Therefore, site-specific cleanup criteria may be required by the MDEQ to address multiple exposure scenarios.

In March 1995, USEPA published the Final Water Quality Guidance for the Great Lakes System to establish water quality criteria, methodologies, policies, and procedures for the Great Lakes States and Tribes.

3.2 Location-Specific ARARs and TBCs

Possible location-specific ARARs include regulations that govern activities conducted in floodplains, wetlands, historical areas, farmland, recreational rivers, and activities affecting navigable waters. Possible location-specific ARARs and TBCs for the site are summarized in Table 2.

Federal and state waterway and floodplain management laws and regulations are possible ARARs for remedial alternatives in navigable water or within either the 100-year floodplain or floodway.

3.2.1 River, Wetlands, and Floodplain-Specific ARARs

Possible federal location-specific ARARs are contained in the CWA governing floodplain management and wetland protection, the Endangered Species Act of 1973, the Coastal Zone Management Act, the Rivers and Harbors Act, and the Fish and Wildlife Act.

Federal requirements for activities conducted within floodplains are provided in 40 CFR 6.302, Subpart A. Executive Orders identified in Table 2 could affect any work conducted in floodplain or wetlands.

Possible State of Michigan location specific ARARs are contained in several parts of the NREPA, including: Part 17 (Michigan Environmental Protection Act), Part 91 (Soil Erosion and Sediment Control), Part 31 (Water Resources Protection), Part 301 (Inland Lakes and Streams), Part 303 (Wetlands Protection), Part 323 (Shorelands Protection and Management), Part 353 (Sand Dune Protection and Management), and Part 365 (Michigan Endangered Species Act).

Conditions necessitating MDEQ permits, definitions, and requirements for discharging waste into state waters are pursuant to Part 31 (Water Resources Protection Act) of NREPA and Michigan's Permit-by-Rule. The Michigan Soil Erosion and Sediment Control Program (Part 17 and Part 91 of the NREPA) establishes rules for soil erosion and sediment control requirements for earth disturbance of an acre or greater in total or within 500 feet of a lake or stream. State rules and regulations regarding potential remedial activities in wetlands, floodplains, dams, and inland lakes and streams are found in Part 301 (Inland Lakes and Streams), Part 303 (Wetlands Protection), and Part 323 (Shorelands Protection and Management) of NREPA, and Part 353 (Sand Dune Protection and Management). Part 365 (Endangered Species) of NREPA may apply to remedial actions that could disrupt or disturb certain habitats.

3.2.2 Endangered Species-Specific ARARs

The Fish and Wildlife Coordination Act requires the involvement of the U.S. Fish and Wildlife Service if the remedial alternative involves impoundment, diversion, channel deepening, or controlling or modifying a stream or body of water. An evaluation of threatened and endangered species will need to be conducted for each Area. If endangered species are determined to be present, the provisions of the Endangered Species Act of 1973, as amended, and Part 365 (Michigan Endangered Species Act) of the NREPA must be met.

3.2.3 Other Location-Specific ARARs and TBCs

Federal provisions of the National Historical Preservation Act will apply to those portions of the Site that are currently listed on the National Register of Historic Places.

The Archeological and Historical Preservation Act (16 USC 469 et seq.) establishes procedures for the preservation of historical and archaeological data pertaining to a federal licensed activity or program.

Other possible federal ARARs include the Farmland Protection Policy Act of 1981 which is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses, and the Wild and Scenic Rivers Act which protects recreational rivers such as the Kalamazoo River.

Fish consumption advisories are a possible state TBC. The MDCH is responsible for establishing, modifying, or removing sport fish consumption advisories in Michigan. Consumption advisories by fish species and fish length for individual water bodies, including the Kalamazoo River, are published annually in The Michigan Family Fish Consumption Guide (MDCH 2007). The MDCH uses chemical-specific “trigger levels” for concentrations in fish to assess the need for advisories (see Table 2).

The Coastal Zone Management Act, which requires remedial alternatives to be completed in a manner consistent with State of Michigan requirements, is a possible TBC.

3.3 Action-Specific ARARs and TBCs

Action-specific ARARs include general health and safety requirements and requirements for handling and disposing of PCB and hazardous waste (including transportation and disposal, permitting, manifesting, and disposal and treatment facilities). Action-specific ARARs also cover air emissions, dam construction and management, discharge of fill and dredged

materials, and discharge of processed water. Possible action-specific ARARs and TBCs for the Site are summarized in Table 3.

Possible federal action-specific ARARs are found in RCRA, the Water Resources Development Act, the Clean Air Act (CAA), the Solid Waste Disposal Act, TSCA, CWA, the Rivers and Harbors Act, and U.S. Department of Transportation (USDOT) rules.

Possible state action-specific ARARs are contained in Part 31 (Water Resources Protection), Part 111 (Hazardous Waste Management), Part 115 (Solid Waste Management Regulations), Part 301 (Inland Lakes and Streams), Part 303 (Wetlands Protection), , and Part 325 (Great Lakes Submerged Lands) of NREPA.

TBCs at the federal level include the U.S. Army Corps of Engineers' dredged material testing manual, the establishment of air emission rates in accordance with the National Ambient Air Quality Standards, and rules under the Federal Power Act of 1920. Possible state action-specific TBCs are included in rules under Part 55 (Michigan Air Pollution Act) and Part 315 (Dam Safety) of NREPA, and are also found in the Occupational Safety and Health Administration (OSHA) rules and the Michigan Occupational Safety and Health Act (MIOSHA).

3.3.1 Identification and Management of Hazardous Materials ARARs

Regulations regarding identifying and listing hazardous wastes are pursuant to RCRA and outlined in 40 CFR 261 and Part 115 (Solid Waste Management Regulations) of NREPA. Management of hazardous waste is pursuant to the Solid Waste Disposal Act and outlined in 40 CFR Parts 262 through 265. Land disposal restrictions, which regulate the management and disposal of PCBs, are also pursuant to the Solid Waste Disposal Act and are listed under 40 CFR Part 268.

3.3.2 Transport of Hazardous Materials ARARs

USDOT and the State of Michigan rules for the transport of hazardous materials are provided under 49 CFR Parts 107 and 171-172, and Part 111 of the NREPA, respectively. These rules include procedures for packaging, labeling, manifesting and transporting hazardous materials and would be potentially applicable to the transport of hazardous materials under any remedial alternative.

3.3.3 Dam Modification TBCs

Potential remedial alternatives may require modification of existing dams or construction of other water control structures. Licenses issued by the Federal Energy Regulatory Commission will need to be considered for alternatives which involve alteration of dam operations. Part 315 (Dam Safety) of NREPA establishes rules related to construction, repair, alteration, removal, abandonment or reconstruction of dams.

3.3.4 Discharge ARARs

The Water Bureau within the MDEQ has responsibility for administering the National Pollutant Discharge Elimination System program under the authority of the CWA and Part 31 of NREPA. If the potential remedial alternative for the Site results in discharges to surface water (for example, due to dewatering of dredged material or other activities), discharge limits must be established for individual constituents.

Pursuant to the CWA, if water is treated at the Site and discharged to a publicly owned treatment works, the influent requirements of these facilities must meet standards under 40 CFR Parts 136 and 403.

3.3.5 Air Release ARARs

Potential remedial alternatives may result in primary or secondary releases of COCs or fine particulates into the ambient air. Air quality standards are covered under the CAA and the Part 55 of NREPA (Michigan Air Pollution Act). These regulations establish performance standards, filling requirements, and emission standards to be protective of public health.

3.3.6 Safety TBCs

Remedial action conducted at the Site must comply with applicable requirements outlined under OSHA and MIOSHA. General industry standards are outlined under OSHA (29 CFR 1910) that specify time-weighted average concentrations for worker exposure to various compounds and training requirements for workers involved with hazardous waste operations. The types of safety equipment and procedures to be followed during Site remediation are specified under 29 CFR 1926, and recordkeeping and reporting-related regulations are outlined under 29 CFR 1904. Where applicable, the remedial action will follow certain provisions of MIOSHA which are more stringent than the counterpart federal OSHA requirements. Local traffic or noise ordinances may apply to remedial actions at certain sites.

3.3.7 Emergency Preparedness ARARs

In addition to the requirements outlined under OSHA, the preparedness and prevention procedures, contingency plan and emergency procedures outlined under RCRA (40 CFR 264) are potentially relevant and appropriate to those remedial alternatives that include generation, treatment, or storage of hazardous wastes.

3.3.8 Management and Design ARARs

Pursuant to the CWA as outlined in 40 CFR 122 and 125, the potential remedial activity must employ the best available technology and monitoring and must specify best management practices. Remedial activities below the ordinary high water mark of the Great Lakes may require a Great Lakes Bottomlands Permit pursuant to Part 325 of NREPA.

4. References

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Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

Table 1 -- Possible Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds

Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
Federal Chemical-Specific ARARs and TBCs			
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 129 Toxic Pollutant Effluent Standards	Establishes effluent standard for toxic compounds including PCB (40 CFR 129.105). Applies to discharges to navigable waters. Applicable for remedial alternatives that would include discharge of water to the river. The ambient water quality criterion for navigable waters is 0.001 µg/L total PCB.	ARAR
Clean Water Act 33 USC §§ 1251-1387	63 Fed. Reg. 68354 (December 10, 1998)	Criteria for continuous concentration (chronic) for PCBs are 0.014 µg/L in freshwater.	ARAR
Toxic Substances Control Act (TSCA) 15 USC § 2605	40 CFR Part 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions	Establishes requirements for handling, storage, and disposal of PCB-containing materials in excess of 50 ppm. Applicable for PCB-containing materials that are removed from the Site. Establishes performance standards for disposal technologies. Spill cleanup policy establishes cleanup criteria for spills after 5/4/87. Soil cleanup levels: Unrestricted access - 10 mg/kg, restricted access - 25 mg/kg.	ARAR
Resource Conservation and Recovery Act (RCRA) 42 USC §6901 et seq	40 CFR 264.94 and 264.100 Alternate Concentration Limits (ACLs) for Groundwater	Risk assessment may used to develop risk-based Remediation Goals (RGs) under CERCLA or Target Cleanup Levels (TCLs) (CERCLA Section 121) or Alternate Concentration Limits (ACLs) under RCRA. Risk-based RGs, TCLs, or ACLs should be developed after the baseline risk assessment has been performed incorporating site-specific factors in the calculations (if conditions for ACLs are met at areas of potential applicability).	ARAR
Clean Water Act 33 USC §§ 1251-1387	40 CFR Parts 9, 122, 123, 131, and 132 Final Water Quality Guidance for the Great Lakes System	The Guidance establishes water quality criteria for 29 pollutants and detailed methodologies to develop criteria for additional pollutants; implementation procedures to develop more consistent, enforceable water quality-based effluent limits in discharge permits, as well as total maximum daily loads of pollutants that can be allowed to reach the Great Lakes and their tributaries from all sources; and antidegradation policies and procedures. The Great Lakes States must adopt water quality standards, antidegradation policies and implementation procedures for waters within the Great Lakes System.	TBC
USEPA Office of Emergency and Remedial Response EPA 540/G-90/007	OSWER Directive 9355.4-01	Guidance on remedial actions for Superfund sites containing PCB. May be used as a guideline for handling PCB-contaminated sediment/soil.	TBC
USEPA Office of Research and Development EPA/540/S-93/506	OSWER Directive	Guidance on technology alternatives for the remediation of PCB-contaminated soil and sediment.	TBC
State Chemical-Specific ARARs and TBCs			
Michigan Natural Resources and Environmental Protection Act 451 of the Michigan Public Acts of 1994, as amended (NREPA) (Part 4 of Part 31) Water Quality Standards	R323.1041 - R323.1117	Establishes water quality requirements for surface waters in the State. Applicable to remedial activities conducted at the Site. Prior SRDs at the Site have specified PCB discharge limitations of 2.6×10^{-5} µg/L.	ARAR
Michigan NREPA (Part 201) Operational Memorandum 1 (Part 201 Cleanup Criteria/Part 213 Risk-based Screening Levels)	Attachment 1, Table 2 Soil: Residential and Commercial I (current version)	Establishes screening levels and generic cleanup criteria for soils in the State. Applicable to remedial activities involving soils at the Site. Part 201 Soil Direct Contact Cleanup Criteria for PCBs at Residential & Commercial I Land Use Category is 4,000 ppb per Footnote (T) of Table 2.	ARAR
Michigan NREPA (Part 201) Operational Memorandum 1 (Part 201 Cleanup Criteria/Part 213 Risk-based Screening Levels)	Attachment 1, Table 1 Groundwater: Residential and Commercial I (current version)	Establishes screening levels and generic cleanup criteria for groundwater in the State. Applicable to remedial activities addressing groundwater and surface water interface (GSI) at the Site where groundwater vents to a surface water body. The GSI Criterion for PCB is 0.2 µg/L or target detection limit.	ARAR

Kalamazoo River Study Group
 Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
 Supplemental Remedial Investigations/Feasibility Studies
 Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

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Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
State Chemical-Specific ARARs and TBCs (Continued)			
Michigan NREPA (Part 201) Operational Memorandum 4 (Site Characterization and Remediation Verification)	Attachment 3 Sediments	Part 201 generic sediment cleanup criteria are not available. Site-specific cleanup criteria may be required to address multiple exposure scenarios. These standards may be used in determining site-specific PCB cleanup levels.	TBC
Trigger Levels of PCB Concentrations Used by Michigan Department of Community Health (MDCH) to establish sport fish Consumption Advisories Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory	Michigan Department of Environmental Quality (MDEQ) 2006 Great Lakes Sport Fish Advisory Task Force (GLSFATF) 1993	Trigger level concentrations of total PCBs in fish for five consumption frequency categories (MDEQ 2006): General Population - 2.0 ppm Women of Child Bearing Age and Children Under 15 Years 1 Meal Per Week - 0.05 ppm 1 Meal Per Month - 0.2 ppm 6 Meals Per Year - 1.0 ppm No Consumption - 1.9 ppm <i>The Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory provides sport fish consumption guidelines for PCB concentrations.</i>	TBC

References

GLSFATF. 1993. Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory. Great Lakes Sport Fish Advisory Task Force, Council of Great Lakes Governors, Chicago, Illinois. Retrieved February 2008 from <http://fn.cfs.purdue.edu/fish4health/HealthRisks/TaskForce.pdf>.
 MDEQ. 2006. Michigan Fish Contaminant Monitoring Program, 2006 Annual Report, MI/DEQ/WB-7/053. Retrieved February 2008 from http://www.michigan.gov/documents/deq/wb-sw-as-fcmp-2006report_198916_7.pdf

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

Table 2 -- Possible Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds

Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
Federal Location-Specific ARARs and TBCs			
Statement of Procedures on Floodplain Management and Wetlands Protection	40 CFR Part 6, Appendix A Statement of Procedures on Floodplain Management and Wetlands Protection	Requires federal agencies, where possible, to avoid or minimize adverse impacts of federal actions upon wetlands/floodplains and enhance the natural values of such. Executive Orders could affect any work conducted in floodplain or wetlands. Executive Order 11988: Floodplain Management requires federal agencies to evaluate the potential effects of actions they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain. Federal agencies are required to avoid adverse impacts or minimize them if no practicable alternative exists. Executive Order 11990: Protection of Wetlands requires federal agencies conducting certain activities to avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands if a practicable alternative exists. Federal agencies are required to avoid adverse	ARAR
Endangered Species Act of 1973, as amended, 16 USC §§ 1531-1544	50 CFR Part 17 Endangered and Threatened Wildlife and Plants 50 CFR Part 402 Interagency Cooperation	Identifies those species of wildlife and plants determined to be endangered or threatened with extinction. Federal agencies are required to verify that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of a critical habitat of such species, unless such agency has been granted an appropriate exemption by the Endangered Species Committee (16 USC § 1536).	ARAR
Wild and Scenic Rivers Act 16 USC §§ 1271-1287	36 CFR Part 297 Wild and Scenic Rivers	Protection of recreational rivers.	ARAR
Fish and Wildlife Coordination Act 16 USC § 661 et seq. 16 USC § 662	33 CFR Part 320 General Regulatory Policies	Whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose, by any department or agency of the United States, such department or agency first shall consult with the United States Fish & Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State in which the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources. Exemption in 16 USC § 662 (h) for impoundment of water where the maximum surface area of such	ARAR

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

Table 2 -- Possible Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds

Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
Federal Location-Specific ARARs and TBCs (Continued)			
Natural Resources Conservation Service 7 USC § 4201 et seq.	7 CFR Part 658 Farmland Protection Policy Act of 1981	Regulates the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.	ARAR
National Historic Preservation Act 16 USC § 470 et seq.	36 CFR Part 65 Natural Historic Landmarks Program 36 CFR Part 800 Protection of Historic Properties	Remedial actions must take into account effect on properties in or eligible for inclusion on the National Registry of Historic Places. Becomes ARAR if activities will affect historic properties or landmarks in or near the Site.	ARAR
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 132, Appendix E Great Lakes Water Quality Initiative Antidegradation Policy	Applicable to action or activity by any source, point or nonpoint, of pollutants that is anticipated to result in an increased loading of bioaccumulative contaminants of concern to surface waters of the Great Lakes.	ARAR
Archeological and Historical Preservation Act 16 USC 469 et seq.	40 CFR Part 6.301(c)	Establishes procedures to provide for preservation of historical and archaeological data which might be destroyed through alteration of terrain as a result of a federal construction project for a federal licensed activity or program. Historic or archaeological value is currently unknown. Applicability will be determined during the FS.	ARAR
Native American Graves Protection and Repatriation Act (NAGPR) 25 USC § 3001 et seq.	43 CFR Part 10 Excavations and Inadvertent Discoveries	The NAGPR act requires federal agencies and museums with possession or control over Native American human remains and associated funerary objects to compile an inventory of such items. It requires federal agencies and museums with possession or control over Native American non-associated funerary objects, sacred objects, or objects of cultural patrimony to provide a written summary of such objects. It prescribes when a federal agency or museum must return Native American cultural items. This regulation is only applicable if Native American remains or funerary objects are at the Site.	ARAR
Coastal Zone Management Act 16 USC § 1451 et seq.	15 CFR Part 930 Federal Consistency with Approved Coastal Management Programs	Conduct activities in a manner consistent with the state program that allows improvement of protection for sensitive shoreline resources, identification of coastal areas appropriate for development, designation of areas hazardous to development and improved public access to the coastline.	TBC

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

Table 2 -- Possible Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds

Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
State Location-Specific ARARs and TBCs			
Michigan NREPA (Part 201) Environmental Remediation	R324.20101 - R324.20140	Establishes rules specifying environmental response, risk assessment, remedial action, and site cleanup criteria. Applicable to remedial activities conducted at the Site.	ARAR
Michigan NREPA (Part 17) Michigan Environmental Protection Act	R324.1701 - R324.1706	Establishes rules prescribing soil erosion and sedimentation control plans, procedures, and measures. If work is conducted in floodplain areas, a soil erosion and sedimentation control plan may be required to perform earth changes.	ARAR
Michigan NREPA (Part 91) Soil Erosion and Sedimentation Control	R324.9101 - R324.9123		
Michigan NREPA (Part 4 of Part 31) Water Resources Protection	R324.3101 - R324.3111 and R323.2190	Establishes permit requirements for alteration of floodplains and discharges to surface waters. Applicable if remedial alternatives involve construction in floodplains.	ARAR
Michigan NREPA (Part 323) Shorelands Protection and Management	R324.32301 - R324.32315	In the absence of an approved local ordinance, any person or agency must first apply for and obtain a permit from the MDEQ when proposing to dredge, fill, grade, or otherwise alter the soil, alter the natural drainage, or alter the vegetation on a parcel or property within a designated environmental area boundary.	ARAR
Michigan NREPA (Part 353) Sand Dune Protection and Management	R324.35301 - R324.35326	The Sand Dune Protection and Management provisions of NREPA require a permit in areas identified as critical dunes for activities including development, silviculture, and recreational activities. Essentially, anything that causes contour changes or significantly alters the physical characteristic of the dunes in a Critical Dune Area requires a permit.	ARAR
Michigan NREPA (Part 365) Michigan Endangered Species Act	R324.36501 - R324.36507	Establishes rules to provide for conservation, management, enhancement, and protection of species either endangered or threatened with extinction. For certain remedial alternatives, activities may disrupt or disturb endangered species.	TBC
Michigan Department of Community Health (MDCH) Fish Consumption Advisory	MDCH Division of Environmental Health 2007	The <i>Michigan Family Fish Consumption Guide</i> provides fish consumption advice for Kalamazoo River by fish species and fish length.	TBC

Reference

MDCH Division of Environmental Health. 2007. 2007 Michigan family fish consumption guide: Important facts to know if you eat Michigan fish. Retrieved February 2008 from http://www.michigan.gov/documents/FishAdvisory03_67354_7.pdf

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

Table 3 -- Possible Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considereds

Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
Federal Action-Specific ARARs and TBCs			
Water Resources Development Act (as amended) 33 USC §§ 2201-2331	33 USC § 2201 et seq.	Requires the Corps of Engineers to develop mitigation plans to repair fish and wildlife damage associated with remedy implementation.	ARAR
Clean Air Act 42 USC § 7401 et seq.	40 CFR Part 50 National Primary and Secondary Ambient Air Quality Standards	Establishes ambient air quality standards for protection of public health.	ARAR
Clean Air Act 42 USC § 7401 et seq.	40 CFR Part 52 Approval and Promulgation of Implementation Plans	Establishes filing requirements and standards for constituent emission rates in accordance with National Ambient Air Quality Standards (NAAQS). To be considered for remedial alternatives that include removal of sediment/soil.	ARAR
Resource Conservation and Recovery Act 40 USC §§ 6901-6992k	40 CFR Part 261 Identification and Listing of Hazardous Waste	Defines threshold levels and criteria to determine whether material is hazardous waste.	ARAR
Solid Waste Disposal Act (as amended) 42 USC §§ 6901-6992k	40 CFR Part 262 Standards Applicable to Generators of Hazardous Waste	Includes manifest, record-keeping and other requirements applicable to generators of hazardous waste.	ARAR
Solid Waste Disposal Act (as amended) 42 USC §§ 6901-6992k	40 CFR Part 263 Standards Applicable to Transporters of Hazardous Waste	Sets forth standards for transporters of hazardous wastes, including the receipt of an EPA identification number and manifesting requirements.	ARAR
Solid Waste Disposal Act (as amended) 42 USC §§ 6901-6992k	40 CFR Parts 264 and 265 Standards for Owners and Operators of Hazardous Waste Treatment and Storage Facilities	Includes management standards including record keeping, requirements for particular units such as tanks or containers, and other requirements applicable to owners and operators of hazardous waste treatment, storage and disposal	ARAR
Solid Waste Disposal Act (as amended) 42 USC §§ 6901-6992k	40 CFR Part 268 Land Disposal Restrictions	Places land disposal restrictions, including treatment standards and related testing, tracking and record keeping requirements on hazardous waste.	ARAR
Toxic Substances Control Act (TSCA), Title I, 15 USC § 2605	40 CFR Part 761.50 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions: Storage and Disposal, Applicability	Identifies disposal requirements for various PCB waste types.	ARAR

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

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Federal Action-Specific ARARs and TBCs (Continued)			
Toxic Substances Control Act (TSCA) 15 USC § 2605	40 CFR Part 761.61 PCB Remediation Waste	Cleanup and disposal options for PCB remediation waste, which includes PCB-contaminated sediments and dredged materials. Disposal options for PCB remediation waste include disposal in a high-temperature incinerator, an approved chemical waste landfill, or a facility with a coordinated approval under 40 CFR Part 761.77. PCB remediation waste containing PCBs at concentrations less than 50 ppm may be disposed of off-site in an approved land disposal facility for the management of municipal solid waste, or in a disposal facility approved under 40 CFR Part 761. 40 CFR Part 761.61(c) allows an EPA Regional Administrator to approve a risk-based disposal method that will not pose an unreasonable risk of injury to human health or the environment.	ARAR
Toxic Substances Control Act (TSCA) 15 USC § 2605	40 CFR Part 761.65 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions: Storage for Disposal	Storage requirements: Establishes technical requirements for temporary storage of PCB wastes prior to treatment or disposal.	ARAR
Toxic Substances Control Act (TSCA) 15 USC § 2605	40 CFR Part 761.79 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions: Decontamination standards and procedures	Decontamination standards and procedures for removing PCBs that are regulated for disposal from water, organic liquids, and other materials.	ARAR
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 122.44 (a,e,i) Establishing Limitations, Standards, and Other Permit Conditions	Best available technology and monitoring requirements.	ARAR
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 125 Criteria and Standards for the National Pollutant Discharge Elimination System	Establishes criteria and standards for imposing technology-based treatment requirements.	ARAR

Kalamazoo River Study Group
 Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
 Supplemental Remedial Investigations/Feasibility Studies
 Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

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Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
Federal Action-Specific ARARs and TBCs (Continued)			
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 231 Section 404(c) Procedures 33 CFR Parts 320-330 Navigation and Navigable Waters	These regulations apply to all existing, proposed, or potential disposal sites for discharges of dredged or fill materials into U.S. waters, which include wetlands. Includes special policies, practices, and procedures to be followed by the U.S. Army Corp of Engineers in connection with the review of applications for permits to authorize the discharge of dredged or fill material into waters of the United States pursuant to Section 404 of the Clean Water Act. In accordance with CERCLA Section 121(e), a permit is not required for on-site CERCLA response actions, although the selected remedy will comply with substantive requirements of these regulations.	ARAR
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 403 General Pre-Treatment Regulations for Existing and New Sources of Pollution 40 CFR Part 136 Guidelines Establishing Test Procedures for the Analysis of Pollutants	Establishes responsibilities of Federal, State, and local government, industry and the public to implement National Pretreatment Standards to control pollutants which pass through or interfere with treatment processes in Publicly Owned Treatment Works (POTWs). Provides guidelines establishing test procedures for the analysis of pollutants.	ARAR
Rivers and Harbors Act 33 USC § 403	33 CFR Parts 320-330 Navigation and Navigable Waters 40 CFR Part 6.302 Procedures for Implementing the National Environmental Policy Act and Assessing the Environmental Impacts Abroad of EPA Actions	Prohibits unauthorized obstruction or alteration of any navigable water in the U.S. (dredging, filling, cofferdams, piers, etc.). Remedial activities may have to be conducted in such a way as to avoid obstruction or alteration of the waterway.	ARAR

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

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Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
Federal Action-Specific ARARs and TBCs (Continued)			
Rivers and Harbors Act 33 USC § 403	33 CFR Part 322 Permits for Structures of Work in or Affecting Navigable Waters of the United States	Requirements for permits affecting "navigable waters of the U.S." If excavation or capping activities are performed, the substantive requirements of the Act must be met for work affecting "navigable waters of the United States."	ARAR
Transportation of Hazardous Materials 49 USC Subtitle III, Ch. 51, §§ 5101-5127	49 CFR Part 107 Hazardous Materials Program Procedures 49 CFR Part 171 General Information, Regulations and Definitions 49 CFR Part 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements	Transportation and handling requirements for materials containing PCB, including procedures for the packaging, labeling, manifesting and transporting of hazardous materials. This would apply to alternatives where sediment/soil are removed and transported from the Site.	ARAR
Occupational Safety and Health Administration (OSHA)	29 CFR Part 1910 Subpart I, Personal Protective Equipment (General Industry); also Parts 1904 and 1926	Establishes 8-hour time-weighted average air concentrations for particulates and PCBs for protection of worker breathing zones, PPE requirements, medical monitoring requirements, respiratory protection requirements, and HAZMAT training requirements. Establishes health and safety requirements for cleanup operations at NPL sites; Site is listed on NPL.	TBC
Clean Water Act 33 USC §§ 1251-1387	40 CFR Part 230 Guidelines for Specification of Disposal Sites for Dredged or Fill Material.	Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Except as otherwise provided under Clean Water Act § 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. If there is no other practical alternative, impacts must be minimized. Includes criteria for evaluating whether a particular discharge site may be specified.	TBC
Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual EPA 823-B-98-004	Department of Army U.S. Army Corps of Engineers Directive	Testing manual establishes procedures for determining the potential for contaminant-related impacts associated with discharge of dredged material in inland waters.	TBC
Federal Power Act of 1920 16 USC § 791a et seq.	18 CFR Parts 1-141 Conservation of Power and Water Resources	Authorizes the Federal Energy Regulatory Commission (FERC) to issue licenses for hydropower dams. Remedial alternatives involving alteration of dam operations would require consideration of existing permits.	TBC

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

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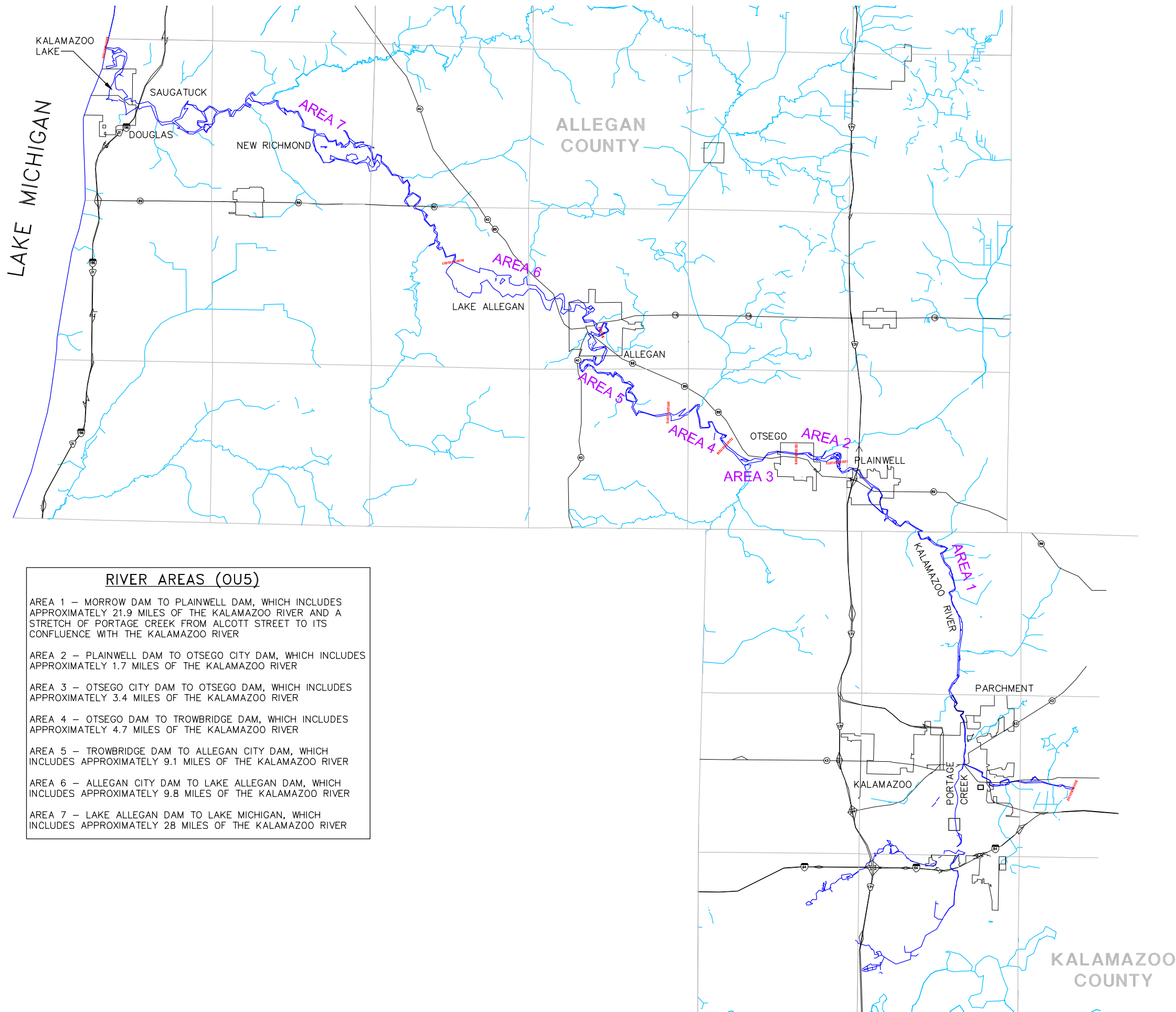
Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
State Action-Specific ARARs and TBCs			
Michigan NREPA (Part 8 of Part 31) Water Quality-Based Effluent Limit Development for Toxic Substances	R323.1201 - R323.1221	Establishes effluent standards in accordance with federal WPCA and CWA. Applicable for alternatives involving discharge of water to the river.	ARAR
Michigan NREPA (Part 21 of Part 31) Wastewater Discharge Permit Requirements	R323.2101 - R323.2195		
Michigan NREPA (Part 22 of Part 31) Groundwater Quality	R323.2204 - R323.2240	Establishes the rules regarding water and wastewater discharge provisions for the nondegradation of groundwater quality and uses of groundwater. May be applicable if remedial alternatives involve discharge of waters or waste to groundwater or the ground.	ARAR
Michigan NREPA (Part 111) Hazardous Waste Management	R324.11101 - R324.11152	Establishes requirements for hazardous waste generators, transporters, and treatment/storage/disposal (TSD) facilities. The Site is likely not a TSD facility nor a generator of hazardous wastes, although certain portions of the regulations may be useful as a means of determining handling/transportation requirements.	ARAR
Michigan NREPA (Part 115) Solid Waste Management	R324.11501 - R324.11550	Establishes rules for solid waste disposal facilities. Apply to an alternative involving landfill.	ARAR
Michigan NREPA (Part 115) Solid Waste Management Rules	R299.4401 - R299.4922		

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Multi-Area Feasibility Study Technical Memorandum: Preliminary List of Possible ARARs

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Authority	Citation	Requirement Synopsis and Rationale	Possible ARAR/TBC
State Action-Specific ARARs and TBCs (Continued)			
Michigan NREPA (Part 301) Inland Lakes and Streams	R324.30101 - R324.30113	Regulates dredging or filling of lake or stream bottoms. For certain remedial alternatives, activities may be affected by these regulations.	ARAR
Michigan NREPA (Part 303) Wetlands Protection	R324.30301 - R324.30323	Establishes the rules regarding wetland uses and the permit application process for protection of state wetland areas. For certain remedial alternatives, activities may be affected by these guidelines.	ARAR
Michigan NREPA (Part 315) Dam Safety Rules	R324.31501 - R324.31529	Establishes rules regarding construction, repair, alteration, removal, abandonment, or reconstruction of dams. This may be a TBC for any remedial alternative that would entail the actions described above.	TBC
Michigan Occupational Safety and Health Act 154 of 1974, as amended	R408.4001 - R408.1094	Establishes the rules for safety standards in the workplace. For certain remedial alternatives, activities may be restricted by these regulations.	TBC
Michigan NREPA (Part 9 of Part 31) Wastewater Reporting Rules	R299.9007	Requires discharge reporting on the part of any wastewater discharger other than of sanitary sewage to a sewer system. Applicable to any alternatives involving discharge of wastewater.	TBC
Michigan NREPA (Part 55) Air Pollution Act	R336.1101 - R336.2823 R324.5501 - R324.5542	Establishes rules prohibiting the emission of air contaminants in quantities that cause injurious effects to human health, animal life, plant life of significant economic value, and/or property. For certain remedial alternatives, dust emissions may need to be monitored.	TBC
Michigan NREPA (Part 325) Great Lakes Submerged Lands	R324.32501 - R324.32516	Dredging, filling, modifying, constructing, enlarging, or extending of structures in Great Lakes waters or below the ordinary high water mark (OHWM) of the Great Lakes; or connecting any natural or artificial waterway, canal, or ditch with any Great Lake including Lake St. Clair; or constructing a marina requires a Great Lakes Bottomlands Permit.	TBC

Figure



NOTES:

1. ALLEGAN AND KALAMAZOO COUNTY MAPPING OBTAINED FROM MICHIGAN RESOURCE INFORMATION SYSTEM.

LEGEND:

LIMITS OF RIVER AREAS WITHIN OU5

RIVER AREAS (OU5)

AREA 1 – MORROW DAM TO PLAINWELL DAM, WHICH INCLUDES APPROXIMATELY 21.9 MILES OF THE KALAMAZOO RIVER AND A STRETCH OF PORTAGE CREEK FROM ALCOTT STREET TO ITS CONFLUENCE WITH THE KALAMAZOO RIVER

AREA 2 – PLAINWELL DAM TO OTSEGO CITY DAM, WHICH INCLUDES APPROXIMATELY 1.7 MILES OF THE KALAMAZOO RIVER

AREA 3 – OTSEGO CITY DAM TO OTSEGO DAM, WHICH INCLUDES APPROXIMATELY 3.4 MILES OF THE KALAMAZOO RIVER

AREA 4 - OTSEGO DAM TO TROWBRIDGE DAM, WHICH INCLUDES APPROXIMATELY 4.7 MILES OF THE KALAMAZOO RIVER

AREA 5 – TROWBRIDGE DAM TO ALLEGAN CITY DAM, WHICH INCLUDES APPROXIMATELY 9.1 MILES OF THE KALAMAZOO RIVER

AREA 6 - ALLEGAN CITY DAM TO LAKE ALLEGAN DAM, WHICH INCLUDES APPROXIMATELY 9.8 MILES OF THE KALAMAZOO RIVER

AREA 7 - LAKE ALLEGAN DAM TO LAKE MICHIGAN, WHICH
INCLUDES APPROXIMATELY 28 MILES OF THE KALAMAZOO RIVER

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE
**MULTI-AREA FEASIBILITY STUDY
TECHNICAL MEMORANDUM**

AREAS OF THE SITE

FIGURE
1